ON PREPARING A HOWGOZIT

BY

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I recently trained a gentleman to be a private pilot. He was a flight instructor's wet dream. He was in a big hurry to finish the process, so he wanted to fly every day, several times a day. He had purchased a brand-new glass-cockpit Cessna 172 in which to learn. This gentleman had recently retired and thought it wouldn't be right for him and his family to boogie around the country in the company bizjet, so he had bought his own Cessna Citation. His fantasy was that he'd qualify for a private ticket with instrument and multiengine ratings so that he could fly right seat on this personal jet. Seems that his pilot was over the age of 70 (*What's wrong with that?*) and the insurance folks wouldn't cover that individual for single-pilot operations. As icing on the cake, my student always carried around a roll of hundred-dollar bills, which he generously shared with me.

He acquired an I-pad and enough training materials to choke a horse. He was a good student and soaked up learning easily, making me look good.

In fact, he was a little too good at accumulating information. When he showed up for his first dual cross-country flight, he had a ream of paper showing all the weather information, the NOTAMS, the airport and aircraft data, and two or three different flight logs, generated electronically by

products recommended to him by various people. Much of this material was duplication of stuff he had acquired from other sources, and the whole pile was a disorganized mess.

So this essay is not about acquiring information. It's about what to do with that information once you have it. This skill is sometimes addressed in the standard syllabus under the rubric of "cockpit organization" or "cockpit management."

I didn't get much help in this area when I was a student pilot. My instructors suggested I draw a bunch of lines on a sectional chart, with course numbers alongside and with hash marks drawn every so-many miles, whether or not there were an appropriate landmark under the mark.

A few years later, I was instructing, under the supervision of some more experienced CFIs. They had an incredibly complicated form that required students to determine all the elements of a pure dead reckoning problem, including true course, variation, magnetic course, deviation, compass course, indicated airspeed, indicated altitude, outside air temperature, barometric pressure, density altitude, true airspeed, wind velocity, wind correction angle, and compass heading. Then they had their students determine the putative ground speed, the estimated time enroute, and the fuel required, including legal reserves.

By the time the student had filled in all the little boxes on the form, he was adept at crunching the numbers, but he really didn't have a vehicle for practical navigation. And it took so long to fill out the form that the weather had usually changed by the time he finished.

Some instructors elected to use the little form on the back of the flight plan blanks. Others simply tried to use the data on the training form to keep track of their check points. One poor student, on his first solo cross-country, was supposed to fly from Houma to Lafayette, a northwest course. Unfortunately, the true airspeed, 107 knots, was listed in the box adjacent to the compass heading, and he ended up trying to get to LFT by flying a heading of 107°. That didn't work out so pretty good.

Time passed and I came to realize that, not only did I not have a method of rendering these numbers into a useable form, but neither did I have an effective vehicle for helping my students to organize their cross-country data.

One day I was sitting in the cockpit of a bizjet that lived in the next hangar, and I happened to pick up a flight log that had evidently been used by the pilot in tooling around the stratosphere at some fairly large mach number. It was very primitive-looking, scrawled on a sheet of notebook paper. This gentleman was a counter-downer, meaning that the mileages he had listed next to his various check points were "distance to go," rather than "distance already covered."

Adjacent to the checkpoints were some VOR frequencies and magnetic courses, and that was just about it. I was impressed that this guy, who was much more experienced than I was, had eliminated much of the material from his flight log that I routinely included. It got me to thinking how I could possibly simplify my flight logs.

So I started with a blank sheet of paper and asked myself what I really was going to use during a cross-country flight. I began the generation of my new form by listing all of the

checkpoints I intended to use. I had long ago discovered that the practice of using an obligatory number of checkpoints, spaced so many miles apart was totally bogus. When ground school students would start that stuff with me, I'd tell them to go to their flight instructor and have him show them the flight log from the instructor's last cross-country flight. I bet them that the instructors didn't have a checkpoint every twenty miles.

So I started using VOR stations as my check points. This didn't always give me a direct course, but it often kept me on airways, and I like that because airways usually keep me out of special-use airspace. Also, airway courses are already plotted on low altitude enroute charts and the mileages are also given, saving me time and wear-and-tear on my plotter. In addition, MEAs, minimum enroute altitudes, are prescribed for the route segments and these give a 1000-foot clearance above any obstacle within a 5-mile radius of any position on the route segment and guarantee VOR coverage for any place along the route.

As an example, I could get to Beaumont, Texas along V20 airway by designating as check points Reserve VOR, Lafayette VOR, Lake Charles VOR, and the Beaumont airport. So I'd start out with a line of VOR stations, listed left-to-right along the top of the page. Then I'd add the magnetic course between each pair of stations, including both the inbound and outbound courses for the route segment, since the VOR courses didn't always line up perfectly. These days I simply use the course given by my electronic flight planner and use the GPS to get me between check points. By the way, the GPS doesn't always agree perfectly with the VOR plots, but it is close enough for government work, to coin a phrase. I also have to look out for

doglegs in the airway, requiring the inclusion of an occasional intersection or mileage breakdown in my list of waypoints.

Next I add a bunch of little V_s connecting adjacent check points. At the vertex of each of these figures, I add the distance in nautical miles between waypoints. I draw the vertices pointing down, but I suppose it would work just as well with them pointing upward. Remember, it is your form, so you should do it any way that makes you happy. I used to calculate my times for each leg as well; but nowadays GPS takes such good care of that chore that I now omit the estimated time between stations from my format.

Above each VOR identifier I add the VOR frequency. This is for backup. In case anything should go wrong with the GPS, I can always tune up the old VOR and hope it still works (and I can remember how to use it!). I underline the VOR frequency if there is no voice capability on that frequency, just as they do on the charts. If I'm in an area where I don't know the name of the stations from looking at the identifiers, I write the names of the fixes directly under the three-letter identifiers. I've only had one GPS malfunction since GPS came on the scene almost 20 years ago, but a belt-and-suspenders approach to committing aviation has always made me feel better, and takes almost no extra planning time.

Then I add up the total mileage and divide that by 5.5. This is because my airplane carries 5.5 hours of fuel, in addition to a tad over an hour of reserve juice. Doing this calculation gives me the minimum *average* ground speed I have to make good, in order to arrive at my destination with my desired reserve. If at

any time that average starts falling short of my calculated figure, I start looking for a place to land short and gas up.

Calculating this average also gives me some idea of the feasibility of making the flight non-stop. Back in the days when I flew around in a 172, this was often a concern. If the calculated number was somewhere short of 100 knots, I'd figure I was probably going to be fat, if the winds aloft forecast were not too far off. Nowadays I fly a 182 that carries 88 gallons of useable fuel, and I have yet to come up short. It's more a matter of mind-over-bladder in these days of a plentiful fuel supply.

Many pilots like to list their check points vertically. I don't know why, but I'm more a horizontal kind of guy. I can't see that it makes a particle of difference. It's just the way I'm used to doing it.

When I depart, I write down my time off under the identifier of the departure airport. Then, after I climb to my cruising altitude and get leveled off and accelerated up to my cruising speed, I let the GPS navigator tell me the estimated time enroute to the next waypoint. I add that to the present time, and write that time under the symbol for the next fix, drawing a circle around my estimate. When I get there, I write down the actual time over the fix with a line under it, directly under the circled estimate. Once again, I have no idea why I use circles and lines – It's just the way I happen to do it, to keep me from getting confused between estimates and actual times over fixes. If those numbers are very far off, it means I've had a change in ground speed, which is the basis of navigation. I'll then know promptly if things are not developing as planned. The question,

“how goes it?” is promptly answered by consulting my flight log, which is why I call it my “howgoesit.”

Another practice I have adopted is to check the bearing and the mileage to each successive fix and compare it to the numbers on my flight log. Believe it or not, I have been known to get in a hurry and mis-copy my numbers off the chart, once in a while.

Beneath my list of fixes there is a very nice area of blank paper on which to scrawl frequencies, altimeter settings, clearances, and any other information ATC sees fit to give me. This is also a hold-over custom from the old days before we had flip-flop frequency selectors on our comm. radios. I also write down information from ATIS messages to remind me, in the heat of battle, what I’m trying to accomplish. This practice also gives me some heads-up when I am digging for approach plates, which I use whether I’m operating IFR or VFR. These little maps are great sources of frequencies and all kinds of other information about the environment around the airport I’m approaching. I urge my VFR-only friends to get acquainted with these handy little charts – It’ll be like getting a raise in pay.

Anyway, this is my way of organizing all that information for use in the cockpit while I’m trying to get from point “A” to point “B” without getting lost or running out of gas. Other pilots undoubtedly have other methods of rendering the needed information into a useable form. The main principle I’d urge you to use when you’re designing something for your use is to eliminate any information you’re not likely to use. Simplify, simplify, simplify. As you use your own version of the howgozit, you may notice things you want to add or leave out. You are the only one who’s likely to see this informational aid,

so it behooves you to make it exactly the way that will be the most useful to you.

If you haven't yet gotten creative about organizing your needed information and eliminating unneeded information, I suggest that you give it a try. You may find that, like me, you end up with a clip board holding one sheet of paper that tells you everything you're going to need to get where you're going, provided that everything goes according to plan "A."